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(19) **United States**(12) **Patent Application Publication**
Ciesla et al.(10) **Pub. No.: US 2012/0193211 A1**(43) **Pub. Date: Aug. 2, 2012**(54) **USER INTERFACE SYSTEM AND METHOD**(52) **U.S. Cl. 200/81 H**(76) Inventors: **Craig Michael Ciesla**, Mountain View, CA (US); **Micah B. Yairi**, Daly City, CA (US); **Nathaniel Mark Saal**, Palo Alto, CA (US)(57) **ABSTRACT**

One embodiment of the user interface system comprises: A tactile layer defining a tactile surface touchable by a user and plurality of deformable regions operable between a retracted state, wherein the deformable regions are flush with an undeformable region of the tactile layer; and an expanded state, wherein the deformable regions are proud of the undeformable region. A substrate joined to the undeformable region and defining a fluid port per deformable region and a fluid channel. A displacement device displacing the fluid through the fluid channel and the fluid ports to transition the deformable regions from the retracted state to the expanded state. A first and a second pressure sensor detecting changes in fluid pressure within the fluid due to a force applied to a particular deformable region. A processor determining the particular deformable region to be location of the input force based upon the detected fluid pressure changes.

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